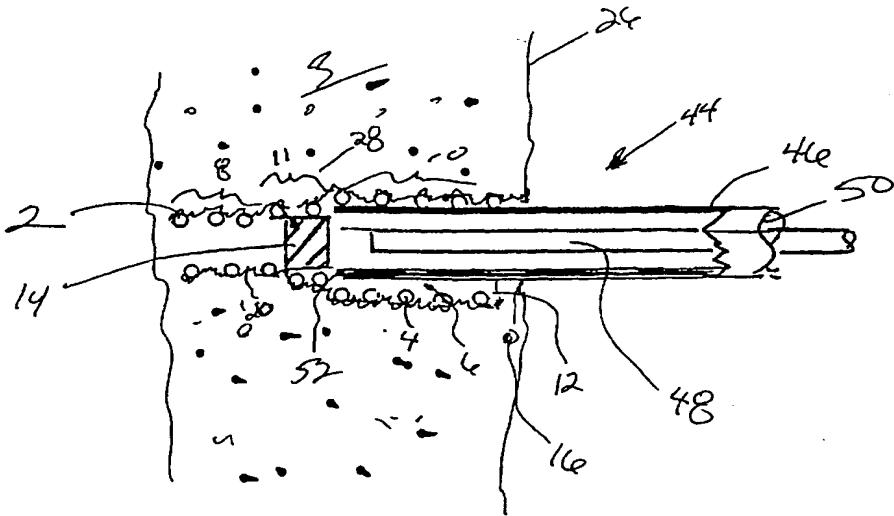


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>A61M 31/00</b>		A1	(11) International Publication Number: <b>WO 00/69504</b>
			(43) International Publication Date: 23 November 2000 (23.11.00)
(21) International Application Number: PCT/US00/13119		(81) Designated States: JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 12 May 2000 (12.05.00)			
(30) Priority Data: 60/134,106 14 May 1999 (14.05.99) US 60/134,566 17 May 1999 (17.05.99) US		Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(71) Applicant (for all designated States except US): C.R. BARD, INC. [US/US]; 730 Central Avenue, Murray Hill, NJ 07974 (US).			
(72) Inventors; and (75) Inventors/Applicants (for US only): GAMBALE, Richard, A. [US/US]; 382 Dunstable Road, Tyngsboro, MA 01879 (US). SHAH, Chirag, B. [US/US]; 28 New Castle Drive, #11, Nashua, NH 03060 (US). WEISER, Michael, F. [US/US]; 516 Martins Pond Road, Groton, MA 01450 (US). FORCUCCI, Stephen, J. [US/US]; 17 Pitcher Avenue, Medford, MA 02155 (US). FORDE, Sean [US/US]; 16 Frank Street, Watertown, MA 02472 (US).			
(74) Agent: PERULLO, John, F.; Kirkpatrick & Lockhart LLP, 75 State Street, Boston, MA 02109-1808 (US).			

## (54) Title: AGENT DELIVERY SYSTEMS



## (57) Abstract

The present invention provides a system for delivering a therapeutic agent into tissue in combination with an implant device (2). Preferably the therapeutic substance is contained within a pellet form (14) that is deliverable into the interior of the device (2) after it has been implanted. In a preferred embodiment the implant device (2) comprises a flexible coiled spring body, the coils (4) of which have the proper diameter and spacing to contain the pellet (14) within the interior of the device (2) to contact the therapeutic agent. In treatment of ischemic tissue such as that of the myocardium of the heart, the mechanical irritation of the tissue caused by the implanted device (2) can help to provide an angiogenic effect. Additionally, the cavity (18) provided by the interior of the device (2) permits blood to pool around the pellet (14) and mix with the therapeutic agent. Several delivery systems have provided for delivering the implant and pellet (14) sequentially or simultaneously.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/13119

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61M 31/00  
US CL : 604/57

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 604/57

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,326,522 A (GUERRERO et al.) 27 April 1982, Figs. 1-4, and related text.	1
A	US 5,851,217 A (WOLFF et al.) 22 December 1998, Figs. 1-3.	1-11
A,P	US 5,971,993 A (HUSSEIN et al.) 26 October 1999, entire patent.	1-11

Further documents are listed in the continuation of Box C.  See patent family annex.

• Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Z"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search  
18 SEPTEMBER 2000

Date of mailing of the international search report

**12 OCT 2000**

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231  
Facsimile No. (703) 305-3230

Authorized officer  
MICHAEL J. HAYES  
Telephone No. (703) 305-5873